An investigation into students' sense of belonging: a case study at a university in Vietnam

Uma investigação sobre o senso de pertencimento dos alunos: um estudo de caso em uma universidade no Vietnã

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ABSTRACT

This study aimed to examine students' perceptions of belonging in their first year studying at a university in Vietnam, explore significant factors affecting students' sense of belonging and find out how students' sense of belonging influences their educational outputs. A mix method approach which combined both quantitative and qualitative analysis was used in this research. In the quantitative phase, 266 first-year students were asked to give their responses on a questionnaire which consisted of three sections. Section one was an adaption from The Psychological Sense of School Membership Scale (Goodenow, 1993) while the other sections involved items on factors affecting students' sense of belonging and the influences of students' belonging on educational outputs. In the qualitative phase, 20 first-year students (10 on-campus and 10 off-campus) took part in the semi-structure interviews. The results showed that the factors affecting students' sense of belonging to the university were academic factors (classroom comfort and instructor support), social factors (co-curricular involvement, peer connection, faculty support, and campus climate) and environmental factors (campus facilities and living space). Institutional factors, on the other hand, did not contribute to students' sense of belonging. Eventually, the findings revealed that students' sense of belonging had a significant effect on their academic achievement, motivation and positive well-being. Meanwhile, loneliness and stress were relieved.

Keywords: Sense of belonging, factors, educational outputs, influence, higher education.

RESUMO

Este estudo teve como objetivo examinar as perceções de pertença dos estudantes no seu primeiro ano de estudo numa universidade no Vietname, explorar fatores significativos que afetam o sentimento de pertença dos estudantes e descobrir como o sentimento de pertença dos estudantes influencia os seus resultados educativos. Uma abordagem de método misto que combinou análises quantitativas e qualitativas foi utilizada nesta pesquisa. Na fase quantitativa, 266 alunos do primeiro ano foram convidados a responder a um questionário composto por três secções. A primeira secção foi uma adaptação da Escala de Sentido Psicológico de Membro Escolar (Goodenow, 1993), enquanto as outras secções envolviam itens sobre factores que afectam o sentimento de pertença dos alunos e as influências da pertença dos alunos nos resultados educativos. Na fase qualitativa, 20 alunos do primeiro ano (10 presenciais e 10 extracampus) participaram das entrevistas semiestruturadas. Os resultados mostraram que os fatores que afetam o sentimento de pertencimento dos alunos à universidade foram fatores académicos (conforto da sala de aula e apoio do instrutor), fatores sociais (envolvimento extracurricular, conexão com colegas, apoio do corpo docente e clima do campus) e fatores ambientais (instalações do campus). e espaço vital). Os fatores institucionais, por outro lado, não contribuíram para o sentimento de pertencimento dos estudantes. Eventualmente, as descobertas revelaram que o sentimento de pertença dos alunos teve um efeito significativo no seu desempenho académico, motivação e bem-estar positivo. Enquanto isso, a solidão e o estresse foram aliviados.

Palavras-chave: Sentimento de pertencimento, fatores, resultados educacionais, influência, ensino superior.

Introduction

Universities are not only teaching and training institutions but also a place to generate knowledge to develop the nation, especially in the knowledge-based economy that countries around the world are targeting, including Vietnam. However, in the context that higher education plays an important role in the Vietnamese overall economy, the dropout rate of first-year students in many universities still exists. According to data provided by the some universities in Vietnam, the rate of students dropping out in the first year is much higher than that in the other years. It can be seen that students tend to stop their studies in a completely new university environment rather than a familiar environment. This phenomenon raises a question for the universities of how to increase the expected retention rate for all the students in general and first-year students in particular. There are many factors that influence the students' retention rate, and one of which is related to students' sense of belonging to the university. Moreover, sense of belonging also has positive connections to students' academic success, motivation,

and emotional well-being. A lack of a sense of belonging can pose a number of risks to students' university experience. Students who do not feel like they belong at their college are more likely to miss class, behave in ways that are inconsistent with successful academic outcomes, leave college early, and are more likely to be victims of violence. Considering the importance of the relational aspect of belonging, the researcher decided to conduct this study "An Investigation into Students' Sense of Belonging: A case study at a university in Vietnam" to gain more knowledge about students' sense of belonging, investigate the factors that affect students' sense of belonging as well as how students' belonging influences their educational outputs.

Significance of the study

The results of the present study could offer a substantial contribution to various stakeholders. First of all, understanding what belonging means and what influences it has could be important to enhance student participation, performance, persistence, happiness, and graduation. In addition, faculty, staff, and administrators would benefit from knowing if a sense of belonging plays a significant role in first-year students' university experience. Last but not least, in terms of research methodology, an important aspect of the current study is the effort to construct a questionnaire on belonging factors, which is relevant to Vietnamese students in today's university environment. Therefore, this study may serve as a springboard for additional research in the Vietnamese research community regarding students' sense of belonging to university.

Research questions

The following questions were addressed in this study:

1. What are students' perceptions of belonging to the university in their first year?

2. What factors affect students' sense of belonging to the university?

3. What influences does students' sense of belonging have on their educational outputs?

Literature review

Definitions of sense of belonging

Sense of belonging has been the focus of a considerable number of studies in recent years. Historically, Maslow (1962) identifies 'belonging' as a basic need and a natural, life-long desire in his theory of the Hierarchy of Needs. In term of psychology of community, as a psychologist, Sarason (1974) mentions sense of belonging as the sense that one belongs in and is meaningfully part of a larger collective, as a result of which one did not experience sustained feelings of loneliness. Similarly, Unger and Wandesman (1985) propose it as feelings of membership and belongingness and shared socio-emotional ties. Besides the research on sense of belonging in the field of psychology and sociology, there has been a recent focus on the feeling of belonging in an educational context. Finn (1989) suggests belonging in school as an internal sense in which the student feels he or she is an important part of the school community.

In higher education, Strayhorn (2012) indicates sense of belonging relates to "students' perceived social support on campus, a feeling or sensation of connectedness, the experience of mattering or feeling cared about, accepted, respected, valued by, and important to the group (e.g. campus community) or others on campus (e.g. faculty, peers)" (p. 3). In this definition, sense of belonging is referred as students' psychological desire and is considered in the components associated with social integration.

In general, although scholars have defined sense of belonging in a number of ways, it is generally described as the degree to which an individual feels connected to and gains self-esteem from the community. For the context and the purpose of the present study, the researcher preferred utilizing Strayhorn's (2012) definition as a research foundation. First, this study is conducted at a university in Vietnam, and in comparison with the other reviewed concepts, his definition seems to be the most appropriate one to investigate the students' sense of belonging in higher education. Second, one of the purposes of the present study is to identify the factors contributing to students' sense of belonging, and in Strayhorn's definition, sense of

belonging refers to students' perceived social support on campus which could be considered as a crucial factor that needs to be investigated.

Measurement of belonging

Throughout the decades, regarding the measurement of belonging in academic context, many scholars have measured sense of belonging in various ways. Although there is not one instrument for the measurement of belonging that has been accepted fully, the Psychological Sense of School Membership (PSSM) Scale developed by Goodenow (1993) seems to be one of the most frequently used instruments. The PSSM is made up of 18 self-reported items in which each item is designed to measure aspects of the individual's sense of school membership, which suggests that the scale is unidimensional However, the results reported in several studies regarding the factor structure of the PSSM scale are inconsistent. For example, while the factor analysis of the PSSM scale in Hagborg's (1998) reveals three factors: *belonging*, *rejection* and *acceptance*, the analyses of the PSSM scale in Bradley's study indicate that each item in the scale contributes to the overall measurement of school belonging, which affirms Goodenow's analysis that the PSSM scale holds the property of unidimensionality.

Recently, Hoffman et al., (2003) developed a five-dimension scale to study the sense of belonging of college freshmen. The scale consists of 26 items divided into five main factors, namely perceived peer support, perceived support/comfort from faculty, perceived classroom comfort, perceived isolation and empathic faculty understanding. While the dimensionality of the sense of belonging construct has still remained an issue of debate, the work of Hoffman et al., (2003) has provided a multifaceted construct in the field of belonging.

In short, sense of belonging has primarily measured through unidimensional or multidimensional scale in over a few decades. In this study, to measure students' general sense of belong, the researcher use the PSSM Scale developed by Goodenow (1993) in which sense of belonging has been operationalized as a unidimensional construct since the researcher aim to measure the students' overall university

connectedness rather than students' perceptions of different aspects of the university environment.

Conceptual framework

The conceptual framework of the current study integrated previous models of belonging. In this section, the researcher will present the theories and models that have a significantly effect on the components of the present framework.

First of all, Tinto's (1993) theory of student persistence and integration provides foundational understanding for the importance of students' involvement in the social and intellectual community of a higher education institution which could directly results in sense of belonging. Specifically, his model of institutional departure suggests that colleges consist of two systems: academic and social, and the students need to achieve not only academic integration through grade performance and intellectual development but also social integration through interaction with college society (peers and faculty).

Another theoretical model indicating the importance of students' interaction with their teachers and/or peers is Juvonen's (1996) model of a sense of belonging. However, in comparison to Tinto's (1993) theory, Juvonen emphasizes more on the quality of relationships that the students have with their peers and teachers. In fact, according to Juvonen, when students perceive the relationships to be positive and supportive, they could have a strong sense of belonging. In contrast, when students perceive the relationships to be negative, they are less likely to feel a strong sense of belonging. The theoretical model, therefore, suggests that a sense of belonging in school is associated with three factors: (1) well-functioning student-teacher relationships, (2) positive relationships with peers and (3) modification of students' behavior.

Recently, Strayhorn (2012) proposes a model of college student sense of belonging emphasizing the necessity of belonging for success. In his model, he considers student group involvement or peer relationships as the various outlets that the students seek out to gain belonging when they face different circumstances and situations in college. In this sense, Strayhorn's model recognizes social spaces
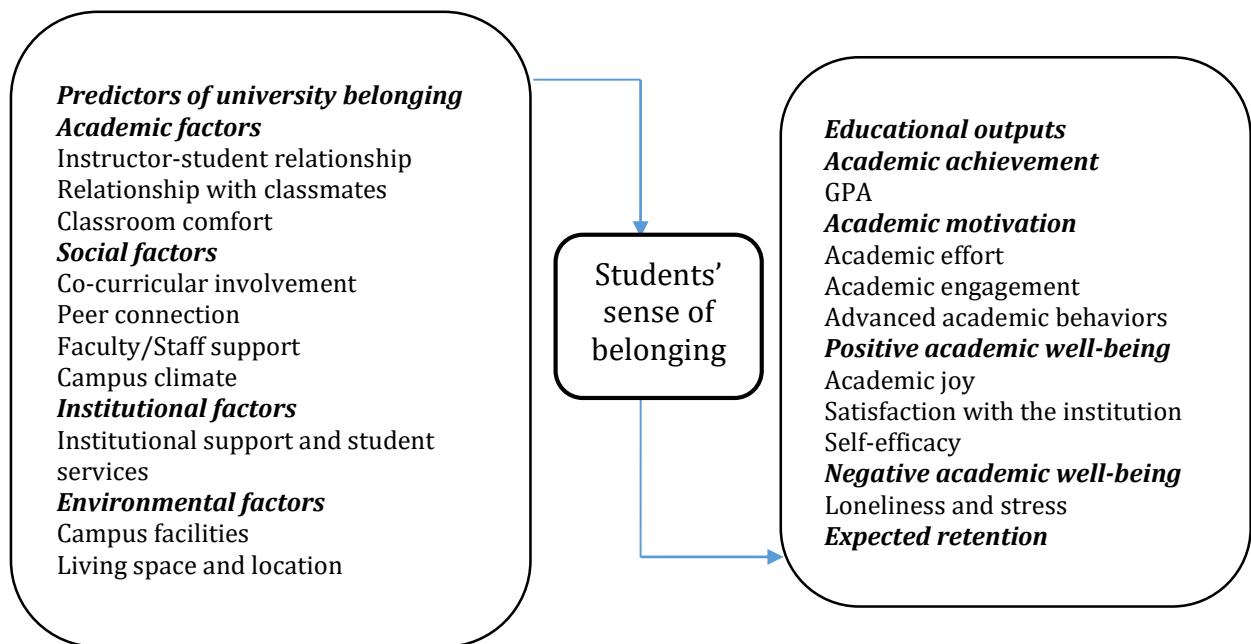
and contexts such as classrooms, residence halls and academic departments are foundational and crucial to develop students' sense of belonging. Furthermore, this model also suggests that if a student is able to satisfy their need to belong, it will lead to positive outcomes such as happiness, growth, and persistence, but if the need to belong is not met it can lead to negative outcomes such as mental health issues. Figure 1 illustrates Strayhorn's model of sense of belonging.

Figure 1 – Sense of belonging model Strayhorn, 2012 p. 25
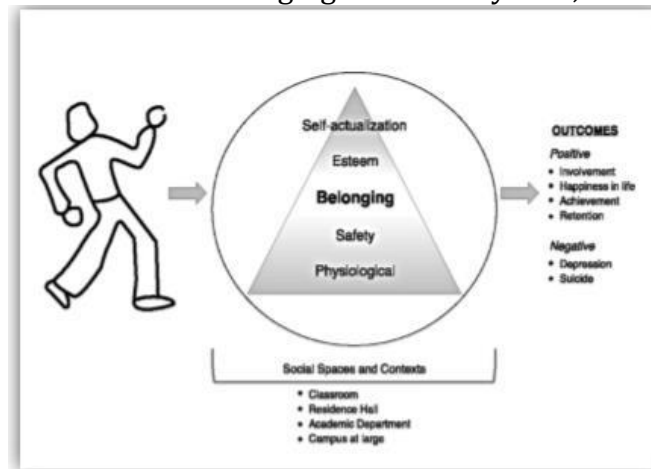
In general, all the three presented models of students' sense of belonging suggest that sense of belonging is achieved when students perceive a sense of social support and connectedness on campus. Since the present study aims to identify the potential factors that influence sense of belonging and the educational outputs of having (or not having) a sense of belonging, Strayhorn's (2012) model of sense of belonging seems to be the most appropriate theoretical framework for reference. In fact, of all the three models, only Strayhorn's model mentions positive and negative outcomes when students experience or do not experience a sense of belonging in their academic environment. Regarding the factors influencing students' sense of belonging, the theoretical framework of this study integrate the elements considered as the predictors of belonging referred in the three above-mentioned models along with the related literature on sense of belonging in higher education to make the research results more diverse and reliable. Figure 2 below diagrams the theoretical framework for the current study.

Figure 2 – Conceptual framework of the present study

Predictors of university belonging
Academic factors
Instructor-student relationship
Relationship with classmates
Classroom comfort
Social factors
Co-curricular involvement
Peer connection
Faculty/Staff support
Campus climate
Institutional factors
Institutional support and student services
Environmental factors
Campus facilities
Living space and location

Students' sense of belonging

Educational outputs
Academic achievement
GPA
Academic motivation
Academic effort
Academic engagement
Advanced academic behaviors
Positive academic well-being
Academic joy
Satisfaction with the institution
Self-efficacy
Negative academic well-being
Loneliness and stress
Expected retention

Based on Strayhorn's (2012) model of belonging, the framework of the current study includes two correlates of student belonging, namely predictors and educational outputs. According to their features, these predictors and outputs are then classified into four groups including academic, social, institutional, and environmental factors. As for the educational outputs, they are organized into four groups, namely academic achievement, academic motivation, academic well-being and expected retention.

Research methodology

Hypotheses

Based on the research questions, the researcher proposed three hypotheses as follows.

H1. The students perceive that they have high level of belonging to their university in their first year of studying at this university.

H2. The factors affecting students' sense of belonging to the university could fall into four categories including academic, social, institutional and environmental factors.

H3. Sense of belonging could help students improve their academic achievement, gain more motivation, have positive academic well-being as well as relieve loneliness and stress.

Participants

The population for this study was approximately 266 students (138 females, 128 males) who attended first- year courses in a university in Vietnam. The age of participants ranged from 18 to 20. Some of them were living in the dormitory, and the others were living off-campus including living in a boarding houses and living at home. In the quantitative phase, a purposive sampling technique was applied to select first-year students, and a simple random sampling technique was used to choose these first-year students to complete the questionnaires. The qualitative phase of the study involved 20 students (10 on-campus and 10 off-campus students) selected from among the questionnaire respondents. As for the interviews, only a random sampling technique was used to choose for the students in the off-campus group, and for the on-campus group, both random and snowball techniques were applied.

Research instruments

This study employed a mixed method combining both quantitative and qualitative approaches to provide a more complete picture and a voice of the participants.

The quantitative instrument

The questionnaire used in this study consisted of three sections related to the three research questions and a short opening section devoted for collecting the demographic data such as students' gender, age, email address, phone number and current residence.

Section 1: Students' perceptions of their belonging to the university

To measure the level of belonging as perceived by the students, the researcher used the Psychological Sense of School Membership Scale (Goodenow, 1993). The original version of PSSM was modified to make sure it is comprehensive and appropriate in the research context. First of all, some changes were made to the wording to reflect the concept of membership in higher education. For example, the term "university" was used instead of the terms "school" and "here". In addition, to get convenience and make it comprehensive to the first-year students with limited English proficiency, the questionnaire was then translated into Vietnamese.

Section 2: Factors influencing students' sense of belonging

This section included 51 statements related to the factors affecting the sense of belonging of university students. According the theoretical framework and the literature reviewed in chapter two, these factors were categorized into four groups: academic factors (15 items), social factors (18 items), institutional factors (5 items) and environmental factors (13 items).

Section 3: Influences of students' sense of belonging on educational outputs

This last section involved 22 statements about the impacts of sense of belonging on students' educational outputs. These items were grouped into four categories including: academic achievement (1 items), motivation (9 items), well-being (13 items) and expected retention (4 items).

The qualitative instrument

The interview guide included the guiding questions divided into three themes according to the three research questions. In general, the interview guide consisted of 6 parts as follows.

Part A of the interview guide was the introduction.

Part B consisted of opening questions to find out about the participants' backgrounds.

Part C focused on the participants' perceptions of belonging in the context of the university.

Part D consisted of more in-depth questions to get more insights into the factors that influence students' sense of belonging.

Part E focused on the impact of students' sense of belonging on their educational outcomes.

The final part F closed the interview. The interviewer thanked the participants for their time and asked them for additional comments.

Results and findings

A total of 289 students (about 30 students per class) participated in the study including 289 respondents for the questionnaires and 20 participants for the interviews. Of the 289 total questionnaires collected through the survey, 266 were used for statistical analysis, while 23 were excluded due to missing parts of the survey. The statistical program SPSS 20 was used for empirical analysis for the paper.

Verification of the reliability and validity

In order to analyze the reliability and validity of the questionnaire measurement, Cronbach's α and Exploratory Factor Analysis (EFA) were verified. In order to test the reliability of the questionnaire, a pilot test with the sample of 30 students was carried out. After removing all the unreliable items, the entire sample of the study (N = 266) was used to measure the validity of the questionnaire.

Analysis of the reliability and validity of the Vietnamese version of the PSSM scale

The results of the pilot study showed that the Cronbach alpha value of the PSSM scale (18 items) was .744; however, for item reliability, there were five items whose alpha if item deleted scores were higher than the scale's alpha. Moreover, the item-scale correlation of these items was rather low, so the researcher decided to remove them from the original scale. After removing these five items, the Cronbach alpha value of the questionnaire (13 items) was .917

To verify the validity of scale, the researcher conducted an Exploratory Factor Analysis using Principal Component Analysis and Varimax rotation. After removing one poorly loading item, the results of EFA showed that two components were extracted, explaining 67.273 % of the total variance, as shown in the following table.

Table 1 – Rotated pattern matrix from initial two-factor EFA of the PSSM scale

Items No.	Items Descriptors	Rotated Component	
		1	2
Items 8	I am treated with as much respect as other students.	.860	
Items 10	The faculty members here respect me.	.845	
Items 12	I feel proud of belonging to my university.	.786	
Items 9	I can really be myself at this university.	.762	
Items 1	I feel like a real part of my university.	.642	
Items 3	Other students in this university take my opinions seriously.		.845
Items 2	People at this university notice when I'm good at something.		.786
Items 4	Most faculty members at this university are interested in me.		.718
Items 13	Other students at this university like me the way I am.		.698
Items 11	People at this university know I can do good work.		.662
Items 7	I am included in lots of activities at this university.		.511

As can be seen from table 1, the items in the PSSM scale were divided into two factors. The first factor seemed to be a self-report measure that emphasized on the students themselves who had the feelings of being respected, belonging, comfort with sense of self. On the other hand, the items on the second factor seemed to emphasize on the agents that create students' sense of belong (e.g. peers, faculty, involvement). Since the theoretical framework of this study included sense of belonging as a dependent variable, the researcher expected that the sense of belonging items in the PSSM scale would form a unidimensional scale. In this case, of the two components, the items in the first component seemed to be more helpful because the researcher used the PSSM to measure the students' overall sense of belonging rather than the factors contributing to belonging. Moreover, while the first component showed eigenvalue >6, overall explaining the 57.117% of total variance, the second component had eigenvalue >1, explaining the 10.156% of total variance.

After removal of the items in components 2, the sense of belonging scale used in this study consisted of five items.

Table 2 – Rotated pattern matrix from initial two-factor EFA of the PSSM scale

Items No.	Items Descriptors	Rotated Component	Cronbach's α	
			Remove item	α
Items 8	I am treated with as much respect as other students.	.895	.859	
Items 12	I feel proud of belonging to my university.	.859	.870	
Items 10	The faculty members here respect me.	.844	.877	.898
Items 9	I can really be myself at this university.	.843	.876	
Items 1	I feel like a real part of my university.	.777	.894	

The results of the final EFA showed a unidimensional PSSM scale explaining 71.322% of the variance in the data. Bartlett's test in factor analysis showed that correlation between variables was statistically significant (sig = .000). The coefficient of KMO was .847 indicating that the EFA was appropriate. This scale had an overall satisfactory internal consistency (Cronbach's alpha = .898).

Analysis of the reliability and validity of the questionnaire on factors affecting students' sense of belonging

The results of the pilot study showed that the Cronbach alpha value of the questionnaire on factors influencing students' sense of belonging (51 items) was .968 for academic factors, .932 for social factors, .892 for institutional factors and .916for environmental factors. However, for item reliability, there were three items whose alpha if item deleted scores were higher than the scale's alpha, and the item-scale correlation of these items was rather low. Therefore, the researcher decided to remove these items. After removal of 3 items, the reliability analysis of the questionnaire on the factors influencing students' sense of belonging (48 items) showed that Cronbach's α coefficient for academic factor (N=15) was .968; social factor (N=17) was .957; institutional factor (N= 5) was .892; and environmental factor (N= 11) was .947. The results indicated the high internal consistency of the questionnaire.

To verify the validity of the questionnaire, the researcher conducted an Exploratory Factor Analysis using Principal Component Analysis and Varimax rotation. Seven components were extracted, overall explaining the 74.448 % of the

total variance. However, the pattern matrix showed that there were two items poorly loading (< .5) and one item crossloading onto two components (≥ .5). After the researcher removed these items and performed EFA again and again for seven times, in the final EFA results, five components were extracted, explaining 73.407 % of the total variance.

Table 3 – The rotated pattern matrix and reliability of the questionnaire on the factors affecting students' sense of belonging

Factors and Variables	Rotated Component					Cronbach's α	
	1	2	3	4	5	Remove item	α
University facilities & living space							
The living conditions in this university are comfortable (adequate space, lighting, air, etc.).	.838					.961	
The campus is kept very neat and clean.	.831					.961	
The campus and buildings are well-landscaped.	.812					.961	
The facilities in this university address my needs and I feel comfortable using them.	.809					.960	
The facilities on this campus are well-maintained.	.806					.961	
I feel safe and secure studying at my university.	.785					.962	
There are sufficient facilities in this campus.	.777					.961	
It is easy to get the resources I need from the university library.	.715					.962	.965
I feel the recreation amenities in this university meet the needs of the students.	.702					.962	
The campus has sufficient green space for natural environment.	.656					.963	
I feel that my university has adequate resources to meet the needs of every student.	.622					.963	
I am satisfied with the overall assistance and services I received in this university.	.606					.962	
There is a fair grading system for my training/study at this university.	.546					.964	
I am pleased with the food served at the cafeteria.	.531					.963	
The university atmosphere provides me with positive energy.	.517					.963	
Classroom comfort & instructor support							
I feel comfortable asking a question in class.		.842				.927	
I feel comfortable volunteering ideas or opinions in class.		.785				.926	
Speaking in class is easy because I feel comfortable.		.761				.930	
I feel comfortable contributing to class discussions.		.723				.928	.939
I feel comfortable making presentation in class.		.714				.934	
I feel comfortable asking a teacher for help if I do not understand course-related material.		.653				.934	
My teachers notice when I am having trouble learning something.		.592				.933	

I feel comfortable asking a teacher for help with a personal problem.	.562				.938	
Co-curricular Involvement & peer connection						
Extracurricular activities enhance my confidence and help me build new friendships.		.817			.918	
Extracurricular activities are important for students like me.		.813			.921	
I enjoy participating in extracurricular activities at my university.		.784			.922	
I am involved in some activities (eg. sports, clubs, etc.) at my university.		.667			.933	
There are many chances for me to make friends outside of class at this university.		.657			.921	.932
I am satisfied with the diversity and quality of the offered extracurricular activities.		.646			.922	
I feel comfortable starting a conversation with new friends here.		.637			.922	
I find it easy to communicate with seniors to learn from experience.		.535			.926	
Faculty support & campus climate						
There's at least one teacher or other adult in this university I can talk to if I have a problem.			.690		.932	
I feel that a faculty member would take the time to talk to me if I needed help.			.684		.933	
I feel comfortable talking about a problem with faculty.			.624		.930	
I am treated with as much respect as other students.			.623		.937	.942
If I had a reason, I would feel comfortable seeking help from a faculty member outside of class time (office hours etc.)			.600		.933	
Freedom of expression is protected on campus.			.598		.935	
I feel comfortable socializing with a faculty member outside of class.			.598		.933	
Institutional support & student services						
I feel financial aid is adequate for students at this university.				.700	.868	
There are many student support services (e.g., tutoring, counselling, health) provided on this campus.				.681	.829	.885
Student support services helped me stay enrolled and be successful at my university.				.623	.815	

As can be seen from table 3, the items in the questionnaire on the factors influencing students' sense of belonging were divided into 5 components. The first component (consisting of 15 items) involving environmental factors referred to

students' satisfaction with *campus facilities and living space* at their university. The second component (including 8 items) related to academic factors focused on *classroom comfort and instructor support* in class. The third component (encompassing 8 items) concerning social factors assessed students' *co-curricular involvement and peer connection*. The four components (including 7 items) related to social factors focused on *faculty support and campus climate*. The final component (consisting of 3 items) concerning institutional factors concentrated on *institutional support and student services*.

The results of the final EFA showed the questionnaire on factors affecting students' sense of belonging explaining 73.407 % of the variance in the data. Bartlett's test in factor analysis presented that correlation between variables was statistically significant (sig =.000). The coefficient of KMO was .960 (df=820) indicating that the EFA was appropriate. The reliability analysis of the components (factors influencing students' sense of belonging) showed that Cronbach's α coefficient for component 1 (N=15) was .965; component 2 (N=8) was .939; component 3 (N=8) was .932; component 4 (N=7) was .942; and component 5 (N=3) was .885. The results indicated the high internal consistency of the questionnaire.

Analysis of the reliability and validity of the questionnaire on the influences of sense of belonging on students' educational outputs

The results of the pilot study showed that the Cronbach alpha value of the questionnaire on influences of sense of belonging on students' academic outputs was .847 for academic motivation (N=9), .942 for positive academic well-being (N=9), .879 for negative academic well-being (N= 4) and .786 for expected retention (N= 4). The results indicated the high internal consistency of the questionnaire.

To verify the validity of scale, the researcher conducted an Exploratory Factor Analysis using Principal Component Analysis and Varimax rotation. After removing cross-loading items and performed EFA again and again, in the final EFA results, three components were extracted, overall explaining the 65.592 % of the total variance, as shown in the following table.

Table 4 – The rotated pattern matrix and reliability of the questionnaire on the influences of sense of belonging on students' educational outputs

Factors and Variables	Rotated Component			Cronbach's α	
	1	2	3	Remove item	α
Positive academic well-being					
I think I will earn a degree from this university.	.837			.925	
My university is the right university for me.	.804			.923	
I will re-enroll here next semester.	.780			.930	
I am satisfied with teaching and learning in my university.	.771			.919	
I enjoy the learning experience at my university.	.738			.920	
I am satisfied with faculty support and interactions in my university.	.717			.922	.932
I am satisfied with facility provision in my university.	.683			.925	
I am pleased with what is being taught in my classes.	.677			.923	
I try to complete assignments assigned by teachers.	.658			.929	
Academic motivation					
Sometimes I get so interested in the activities in class that I don't want to stop.		.800		.891	
I have not skipped any class in my course.		.730		.905	
TI changed my other priorities to have enough time for studying.		.729		.895	
I communicate with my instructors outside of office hours.		.722		.896	
I go back to my notes and locate all the information I had forgotten.		.656		.897	.909
I regularly pay attention in class.		.616		.895	
When facing difficult tasks, I am certain that I will accomplish them.		.585		.897	
I am confident that I can perform effectively on many different tasks.		.546		.900	
Negative academic well-being					
I feel lonely at this university.			.815	.731	
No one in the class knows anything personal about me.			.804	.720	
I often feel nervous and upset about grades.			.726	.785	.806
I don't often feel pressured to meet my deadlines on time.			.677	.784	

As can be seen from table 4, the items in the questionnaire on the influences of students' sense of belonging on educational outputs were divided into 3 components. The first component (9 items) measured students' *positive academic well-being.* The second component (8 items) focused on students' *academic*

motivation. The third component (4 items) assessed students' *negative academic well-being* (stress and loneliness).

The coefficient of KMO was .929 (df=210) indicating that the EFA was appropriate. Bartlett's test indicated that data were sufficient to proceed for the factor analysis because correlation between variables was statistically significant (sig = .000).

The reliability analysis of the components showed that Cronbach's α coefficient for component 1 (N=9) was .932; component 2 (N=8) was .909; and component 3 (N=4) was .806. The results indicated the high internal consistency of the questionnaire.

Hypothesis verification

In this section, the presentation of results was organized in three parts in the light of the three hypotheses of the research. Each part included both quantitative data collected from the questionnaires and qualitative data collected from the interviews.

Hypothesis 1 Verification

Hypothesis 1. The students perceive that they have high level of belonging in their first year of studying at this university.

Quantitative analysis

In order to address the first hypothesis about the student's perceptions of sense of belonging, the revised PSSM scale was used to measure the overall level of belonging as perceived by the students. Table 5 presents the summary descriptive statistics for the students' perceptions of their sense of belonging.

Table 5 – Descriptive statistics for the students' perceptions of their belonging

Items	Items Descriptor	N	Mean	SD
10	The faculty members here respect me.	266	4.27	.877
12	I feel proud of belonging to my niversity.	266	4.13	.939
8	I am treated with as much respect as other students.	266	4.12	.995
9	I can really be myself at this university.	266	3.98	1.009
1	I feel like a real part of my university.	266	3.86	1.013

As can be seen from the table, the results showed that the students strongly agreed that they were respected by faculty members (M=4.27, SD=.877), felt proud of belonging to the university (M=4.13, SD=.939), were treated equally (M=4.12, SD=.995), were comfort with sense of self at the university (M=3.98, SD=1.009) and felt as a member in university community (M=3.86, SD = 1.013). In general, all the items in the table had rather high mean scores (much more than the average of .3); therefore, it could be concluded that the students had a high level of belonging to the university. Thus, hypothesis 1 was accepted.

Qualitative analysis

The results collected from the interviews showed that most of the students did have high level of belonging to their university. In fact, 14 out of 20 participants self-evaluated that their level of belonging to the university could be higher than 70 or even 80 percent. Here is an illustration of the responses:

"Apart from the academic pressure, I think I can perceive my belongingness to this university. I think belongingness is the time when I feel comfortable going to the university without any barrier and it is when I can comfortably exchange with lecturers and staff after class." (Alida, English translation)

"I can feel a sense of belonging when I am confidently and proudly said that I am a student at my university when someone asks me where I am studying. Furthermore, it is when I feel comfortable on this campus as if it were at my home." (Alice, English translation)

However, six students admitted that their level of belonging to the university was below average for the fact that they did not make use of the resources and facilities at the school and did not take part in the co-curricular activities.

"My level of sense of belonging to the university is quite low because I don't have many opportunities to take all of the advantages of the facilities on campus to develop myself". (Andrew, English translation)

"I think my level of sense of belonging to this university is below average because I rarely participate in extra-curricular activities at the university." (Hayden, English translation)

Hypothesis 2 Verification

Hypothesis 2. The factors affecting students' sense of belonging to the university could fall into four categories including academic, social, institutional and environmental factors.

Quantitative analysis

Correlation

Prior to testing the hypothesis, a Pearson correlation analysis was performed to determine the degree, strength, and direction of correlation between the variables.

Table 6 – Pearson correlation analysis of factors affecting students' sense of belonging

Potential variables	1	2	3	4	5	6
1. Sense of belonging	1	.738**	.685**	.707**	.714**	.613**
2. Environmental factors (University facilities & living space)		1	.673**	.678**	.715**	.771**
3. Academic factors (Classroom comfort & instructor support)			1	.663**	.803**	.618**
4. Social factors (Co-curriculum involvement & peer connection)				1	.740**	.638**
5. Social factors (Faculty support & campus climate)					1	.668**
6. Institutional factors (Institutional support & student services)						1

**. Correlation is significant at the $p < .01$

As can be seen from the first row of the table, there were significant positive correlations between students' sense of belonging and the potential factors including environmental, academic, social and institutional factors. Among the factors mentioned above, environmental factors had the strongest relationship with the students' sense of belonging to the university ($r = .738$) while institutional factors had the least correlation with the sense of belonging ($r = .613$)

Results related to hypothesis 2 testing

The results of the multiple regression analysis performed to test Hypothesis 2 were shown in the following table.

Table 7 – Regression analysis of factors affecting students' sense of belonging

Independent variable	B	Std. Error	β	t	Sig.	
Constant	.491	.169		2.903	.004	
Environmental factors (*University facilities & living space*)	.410	.070	.381	5.852	.000	adopted
Academic factors (*Classroom comfort & instructor support*)	.160	.060	.168	2.657	.008	adopted
Social factors (*Co-curricular involvement & peer connection*)	.243	.055	.258	4.450	.000	adopted
Social factors (*Faculty support & campus climate*)	.139	.068	.147	2.044	.042	adopted
Institutional factors (*Institutional support & student services*)	-.039	.050	-.047	-.778	.437	rejected

The result showed that the R^2 is .654. This implies that the five independent variables explained about 65.4% of the variance in the dependent variable of sense of belonging. Durbin-Watson was 1.904, so it was judged that there was no correlation between the residuals, and the regression model is appropriate. The F Value 98.470 (p=.000) of the regression model indicated an overall significant effect of the independent variables on the dependent variable (sense of belonging).

The results of the verification of significance of independent variables put into the multiple regression equation for the dependent variable (sense of belonging) were as follows. Environmental factors (t=5.852, p=.000<.05), academic factors (t = 2.657, p=.008<.05), social factors including co-curriculum involvement (t = 4.450, p=.000<.05) and faculty support (t = 2.044, p=.042<.01) had a significant effect on students' sense of belonging. However, institutional factors (t = -.778, p=.437>.05) had no significant effect on students' sense of belonging. Thus, hypothesis 2 was accepted partially.

Qualitative analysis

In this section, for the environmental factors, the interview data were classified into responses from on-campus and off-campus students since the researcher aimed to find out the effects of on-campus and off-campus living on students' sense of belonging.

First of all, in term of ***environmental factors***, all of students said that their first impression about the university was the expedient and brand-new facilities including modern buildings and fully equipped classrooms with air conditioning, projectors, and a commodious library with thousands of books. The students added that studying and living in such a relaxing and fully equipped environment helped them gain more sense of belonging. Here are some prominent students' responses:

"My university provides good facilities to motivate and give us opportunities to study better. I feel the university is as familiar as my home where I can both study and relax". (Alice, off-campus, English translation)

"I spend most of my time in the dormitory and university. Sometimes, I also go for a walk around the campus, the library. In general, my life is mostly at school, so I feel that I am very attached to the university". (Robert, on-campus, English translation)

Secondly, regarding **academic factors**, the students reported that they had good relationship with their instructors allowing them to be open in discussing and sharing problems in their studies. Following are examples of responses:

"In comparison to other universities, the way students interact with faculty members is distinctly different. Lecturers always speak gently to students and treat them with enthusiasm, making it easier for me to express my feelings". (Jade, English translation)

"I think having a good relationship with my classmates helps me feel more connected to the university and study more effectively. For example, when I have problems with my assignments, my friends are always willing to help me". (Lisa, English translation)

However, the students also mentioned a number of barriers in class causing some inconveniences to their study.

"A class of 30 students would be more comfortable in my opinion, but 40 students in a class like mine is quite overcrowded. Aside from that, classroom's projector is not set up in the middle of the board but on one side, which has a negative impact on my learning because lecturers usually stand near the projector to teach". (Hayden, English translation)

Thirdly, **social factors** appeared to be a students' favorable factor in terms of fostering their sense of belonging. They stated that being supported and listened by staff members and peers at the university helped them develop a stronger sense of belonging. Furthermore, diverse co-curricular activities also made an important contribution to students' sense of belonging.

"Supports from faculty make me feel more respected and connected to the university. Whenever I wonder about anything, there is always someone who instantly and enthusiastically answers me". (John, English translation)

"The university provides tons of activities every semester. Even in a pandemic, students can usually participate in activities online. It makes me more active, less passive than ever before". (Lisa, English translation)

Finally, the interview results indicated that **institutional factors** influenced the student's sense of belonging. Students reported that they were pleased with the university's student services and institutional support.

"I often lose my things in university. Meanwhile, staff from the student service department usually take pictures of dropped items and post them on the university Facebook group. Therefore, I can easily find the one I'd lost. I find university is great in this aspect". (Hayden, English translation)

Hypothesis 3 Verification

Hypothesis 3. Sense of belonging could help students improve their academic achievement, gain more motivation, have positive academic well-being as well as relieve loneliness and stress.

Quantitative analysis

Correlation

Prior to testing the hypothesis, a Pearson correlation analysis was performed to determine the degree, strength, and direction of correlation between variables.

Table 8 – Pearson correlation analysis of the influences of students' sense of belonging on educational outputs

Variables	1	2	3	4	5
1. Sense of belonging	1	.200**	.777**	.582**	-.219**
2. Academic achievement		1	.206**	.192**	-.027**
3. Academic motivation			1	.699**	-.322**
4. Positive well-being				1	-.514**
5. Negative well-being					1

According to the correlation analysis results, there were positive and significant correlations between students' sense of belonging and academic achievement (r=.200, p=.001<.01), academic motivation (r=.777, p=.000<.01) and positive academic well-being (r=.582, p=.000<.01). However, there was a negative low-level correlation between students' sense of belonging and negative academic well-being (r=-.219, p=.000<.01).

Results related to hypothesis 3 testing

The results of the simple regression analysis performed to test Hypothesis 3 were shown in the following table.

Table 9 – Regression analysis of the influences of students' sense of belonging on educational outputs

	B	Std. Error	β	t	Sig.
Academic achievement					
Constant	2.806	.226		12.397	.000
Sense of belonging	.181	.055	.200	3.312	.001
R= .200; R^2 = .040; F=10.972; p=.001<.01					
Academic motivation					
Constant	1.290	.144		8.955	.000
Sense of belonging	.697	.035	.777	20.083	.000
R= .777; R^2 = .604; F=403.329; p=.000<.01					
Positive academic well-being					
Constant	1.250	.207		6.030	.000
Sense of belonging	.581	.050	.582	11.633	.000
R= .582; R^2 = .339; F=135.322; p=.000<.01					
Negative academic well-being					
Constant	3.659	.299		12.239	.000
Sense of belonging	-.262	.072	-.219	-.3642	.000
R= .219; R^2 = .048; F=13.266; p=.000<.01					

As can be seen in Table 9, students' sense of belonging explained 4% of academic achievement (F(1.264)= 10.972, p=.001<.01), 60.4% of academic motivation (F(1.264)=403.329 p=.000<.01), 33,9% of positive academic well-being (F(1.264)=135.322 p=.000<.01). From these results, we would conclude that the students' sense of belonging had a positive effect on their academic achievement, motivation and positive well-being. In case of loneliness and stress, students' sense of belonging to the university explained 4,8% of the total variance (F(1.264)= 13.266, p=.000<.01). The regression coefficients related to the loneliness was negative (β = -.219, p=.000<.01), which indicated that students' sense of belonging had a negative effect on loneliness and stress. In other words, students' higher sense of belonging was related to lower loneliness and stress. Thus, hypothesis 3 was accepted.

Qualitative analysis

In terms of **academic performance**, students responded that sense of belonging partly made them grades and performance improved compared to their first semester. In addition to their own efforts, there was also the help of friends and teachers.

"Sense of belonging does support me to make better progress in study because I always feel familiar whenever I go to university. Therefore, I will focus more on studying and have higher learning efficiency". (Eric, English translation)

When asked about **motivation** in learning, students answered that the sense of belonging promoted them to study. They not only came to school more regularly but also spent more time on learning outside of school hours. When having difficult tasks, they actively contacted teachers for further support.

"I am in an environment where there are many people that I admire and love. Furthermore, they are also willing to help me so that I feel appreciated. It motivates me to study". (Samuel, English translation)

As for **positive academic well-being**, the majority of students mentioned their joy of going to school every day. Sense of belonging also helped them to be more active and confident in their own abilities.

"Every day going to school is a nice day because I can meet a lot of friends. The more friends I have, the more I want to go to school". (Bella, English translation)

Besides the positive effects, there were also ***negative academic emotions*** that students experienced while studying at university. The negative emotion that students often mentioned was stress, mainly about the number of deadlines being too excessive as compared to the number of courses and time budget.

"I often experience many negative emotions in my study at the university. Every time I take the exam, I will be a bit stressed about the grades because I am currently studying under a scholarship". (Alida, English translation)

Conclusion

The present study aimed to investigate the first-year students' perceptions of belonging to The university, factors affecting students' sense of belonging and how sense of belonging influences their academic success. In general, descriptive statistics and interview data revealed that the majority of students had a strong sense of belonging in their first year of studying at The university. Furthermore, the findings also revealed the significant factors influencing students' sense of belonging to university included academic factors (classroom comfort and instructor support), social factors (co-curricular involvement, peer connection, faculty support and campus climate) and environmental factors (campus facilities and living space). Institutional factors, on the other hand, had no significant effect on students' sense of belonging. Lastly, the result showed that sense of belonging helped students improve their academic outputs, gained more motivation and positive academic well-being, relieved stress and loneliness.

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